

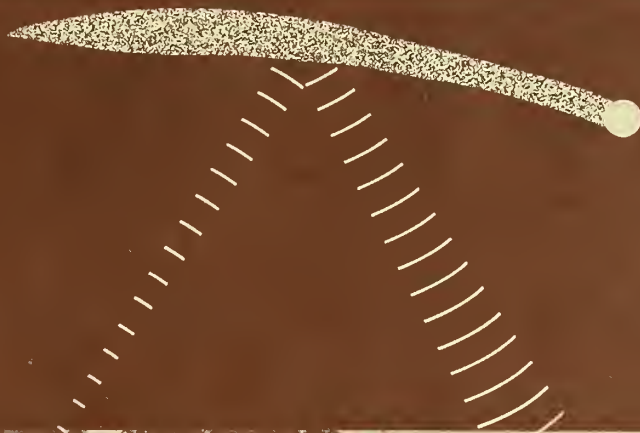
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# **WATER SUPPLY SUMMARY AND OUTLOOK FOR OREGON**



**U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Collaborating with

**OREGON DEPARTMENT OF WATER RESOURCES**

AS OF  
**OCT. 1, 1978**

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

*COVER PHOTO: SOME OF THE DATA IN THIS REPORT HAVE BEEN RECEIVED THROUGH THE SOIL CONSERVATION SERVICE'S NEW SNOTEL SYSTEM WHICH TRANSMITS INFORMATION VIA THE SPACE AGED METEOR BURST METHOD FROM DATA SITES TO MASTER STATIONS LIKE THESE.*

### PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

### PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



# **WATER SUPPLY OUTLOOK FOR OREGON**

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

*Issued*

OCTOBER 8, 1978

*Issued by*

**R. M. DAVIS**

ADMINISTRATOR  
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*Released by*

**GUY W. NUTT**

STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE  
PORTLAND, OREGON

*In Cooperation with*

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OF  
WATER RESOURCES

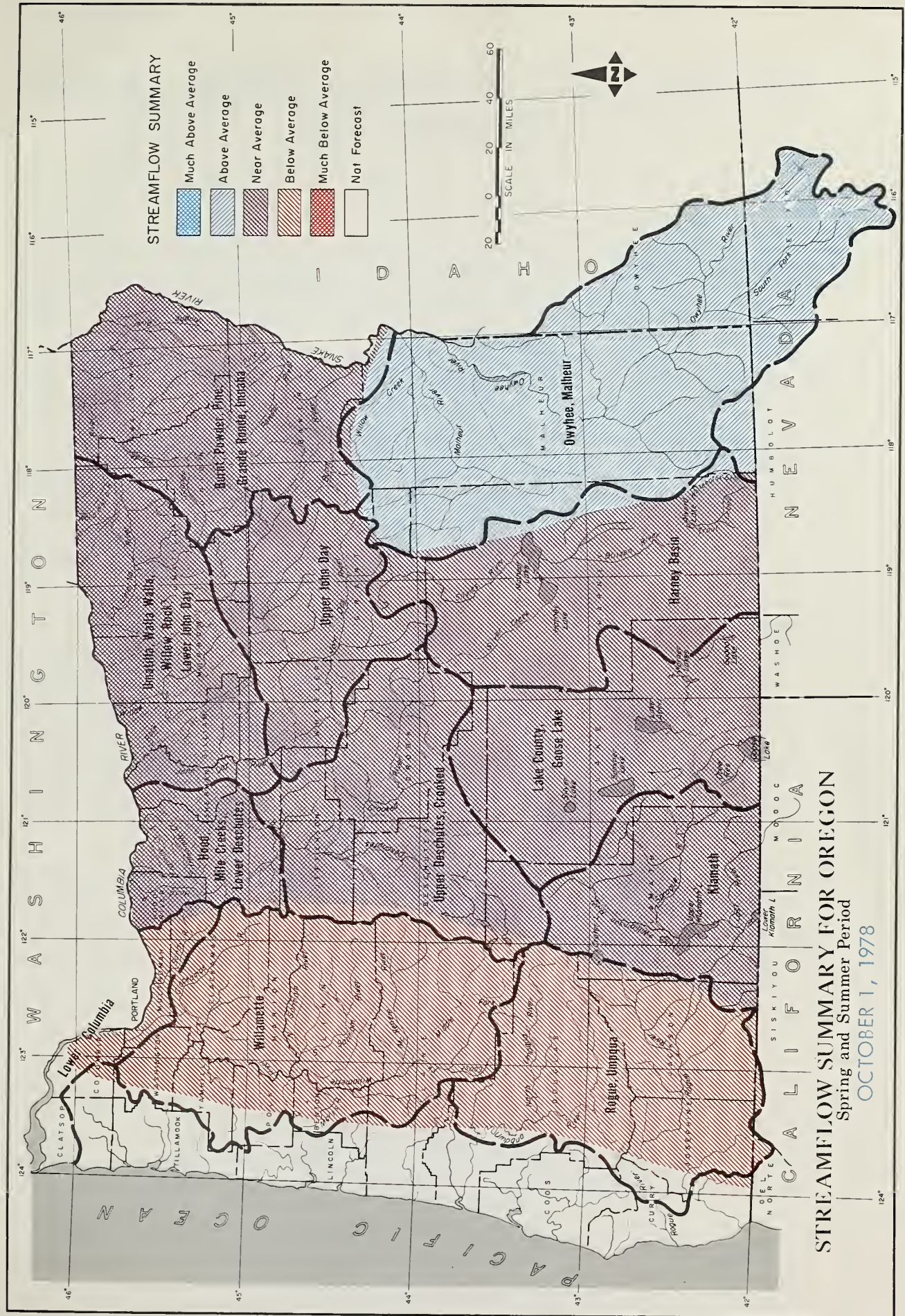
*Report prepared by*

**TOMMY A. GEORGE**, Snow Survey Supervisor  
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# WATER SUPPLY OUTLOOK AND SUMMARY FOR OREGON

OCTOBER 1, 1978

Because of above average precipitation during the summer months, most areas in Oregon experienced water supplies which were better than expected. The precipitation was excessive enough in some areas to cause damage to hay and grain by delaying harvest.

Streamflow held up in most areas, especially west of the Cascades, due to excessive summer rains and cooler temperatures. Water requirements were less because of the lower evapo-transpiration rates.

Forage is in excellent condition throughout the state also because of the summer rains. This is now the third summer in a row that Oregon water supplies have been helped by summer precipitation.

Representative streamflow for this past summer as a percent of average versus the April 1 forecast is as follows:

	<u>Period</u>	<u>Observed Flow</u>	<u>April 1 Forecast</u>
Owyhee Net Inflow	April-July	138%	101%
Chewaucan Near Paisley	April-July	94%	82%
Grande Ronde at LaGrande	April-July	99%	55%
Middle Fk. of Willamette			
Near Oakridge	April-July	68%	64%
Rogue at Raygold	April-July	72%	73%
Upper Klamath Lake	April July	96%	80%

Streamflow was much better than expected in Eastern Oregon also because of the wetter than normal summer. September streamflows ranged 130% of average on the Owyhee in eastern Oregon up to 147% on the Middle Fork of the Willamette on the west side of the Cascades. As a result of the good streamflows, reservoir storage is generally very good.

Following is a summary of water supply conditions by county.

## EASTERN OREGON

Baker - An adequate supply of water was available well into July from the melting snowpack. August and September rains were generous and supplemented supplies in the later summer. Carryover storage in the principal irrigation reservoirs is good. All 129,000 irrigated acres received the amount of water expected in a normal year. Forage supplies are excellent.

-more-

Summary continued -

Wallowa - Excellent irrigation water supplies were experienced even on direct diversions that normally run low in August and September. Above average rainfall in May, June, August and September reduced irrigation requirements and maintained streamflow at an above average level. Wallowa Lake ended the irrigation season with the highest carryover in recent years.

Union - There were no shortages experienced in Union County. Irrigation needs were reduced because of cool weather and good summer precipitation. Wolf Creek reservoir is about half full.

Malheur - It was a good water year in Malheur County. All of the principal irrigation reservoirs have good carryover storage. Higher than average rainfall disrupted some plantings and delayed harvesting.

Grant - Water supplies were slightly above normal throughout the irrigation season. Forage production was excellent with some extra cuttings of hay being harvested. Precipitation was above average during the spring months and extended well into the summer.

Umatilla - Most acres had a normal supply of water. Some had sufficient water only because of the above average precipitation received. Range forage was very good with many springs running all year.

Morrow - Northern Morrow County had adequate supplies. Willow and Rhea Creek supplies were a little shorter than normal. Irrigation demand was less because of the higher than normal precipitation.

Wheeler - In 1977 Fossil recorded 8.9 inches of precipitation. As of September 26, 1978, they had received 20.1 inches during the water year making it one of the wettest on record. Adequate water supplies were available even in streams which are short in a normal year. Some hay cuttings were lost due to the summer rains.

Wasco - Normal to above normal irrigation water was available throughout the season. Rains did delay the wheat harvest for up to three weeks.

Hood River - Water supplies were more than adequate to meet all irrigation needs.

Jefferson - Adequate supplies were available for users in the major irrigated areas. Even the smaller streams such as Trout and Hay Creeks furnished more water than usual.

Crook - Ochoco Irrigation District had 100% of normal irrigation water available. Normal supplies were also available for lands under private ditches off the lower Crooked River and lower Ochoco Creek. Crook County had an excellent forage year. There were no shortages on the upper reaches of Crooked River and Ochoco Creek.

Summary continued -

Klamath - Water supplies were considered adequate in the Klamath Basin during the 1978 irrigation season.

Lake - It was the best water year experienced for quite a long time. Reservoir carryover is good. Streamflow lasted several weeks longer than normal. Range conditions are excellent for fall and winter use.

Deschutes - Enough water was available in Deschutes County in all areas thanks to the summer rains and the use of well water. Project lands all had normal supplies.

Gilliam - 1978 was one of the best precipitation years experienced in some time. Water supplies were adequate. Crop yield and forage production were excellent.

Harney - Irrigation water was available in above average supplies throughout the summer. Forage production was above normal. Silver Creek flowed 5 weeks longer than normal due to summer rains.

#### WESTERN OREGON

Clatsop - All streamflows were adequate for this years needs.

Tillamook - The 1978 water supplies were normal. Forage supplies were affected by too much water.

Lincoln - Water supplies were 100% of normal. Irrigation season from streamflow was short with most water supplied by rainfall.

Coos - Heavy rains were received in August and September thus providing excellent water supplies.

Yamhill - Water supplies were normal or above. Forage supplies, hay and pasture, were higher than normal. The wet late summer delayed and prevented the harvest of grain and seed crops.

Curry - Irrigation water supplies were average to slightly above. Very few acres were affected by lack of water. Forage production was excellent.

Benton - No shortages of water were experienced due to a very wet late summer and fall.

Lane - Water conditions were good during the 1978 growing season. There were problems harvesting crops due to excess rainfall.

Polk - Normal water supplies were available. A decision to cut off irrigators on the Luckiamute River was cancelled in August due to a recharge of the river from August rains.

Summary continued -

Douglas - Ninety-four percent of the acreage in the Umpqua basin received full water supplies. Six percent was out of water July 15-August 6 because of minimum flow requirements.

Josephine - Grants Pass Irrigation district had normal supplies. Other water users on about 6,000 acres were affected by insufficient water.

Jackson - Irrigation Districts had normal supplies. The overall supply on other lands was about 95% of normal but this was sufficient water to irrigate all acreages. Late summer rains allowed good carryover in most reservoirs.

Linn - A near normal water supply was experienced.

Washington - There were no shortages of water. Forage supplies were better than normal.

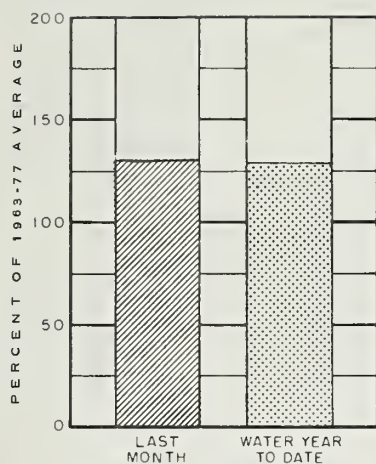


This report contains data furnished by the Oregon Department of Water Resources, U.S. Geological Survey, NOAA National Weather Service and other cooperators.

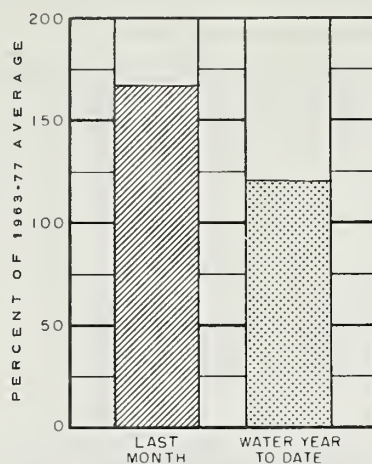


# CURRENT OREGON STREAMFLOW

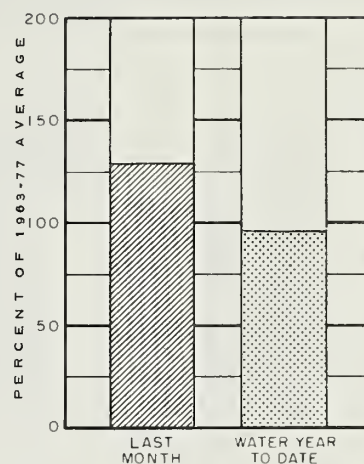
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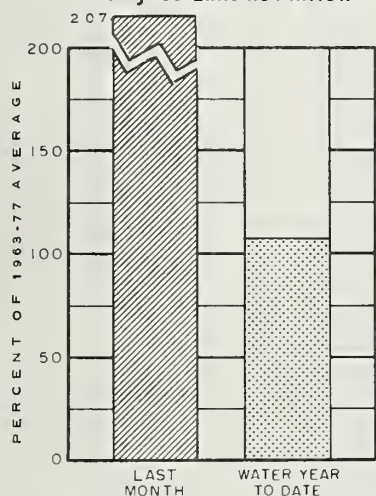
Owyhee Lake net inflow



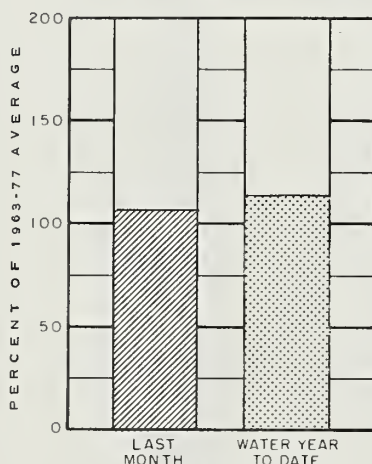
Grande Ronde at La Grande



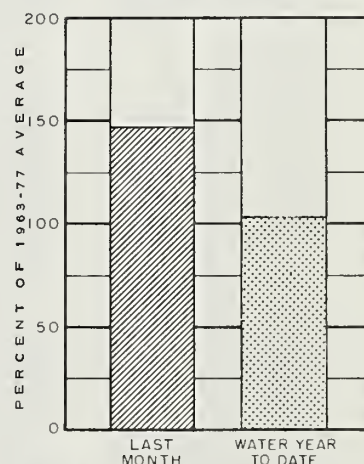
Chewaucan nr. Paisley



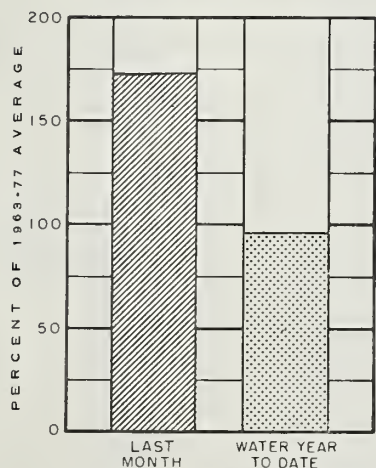
John Day at Service Creek



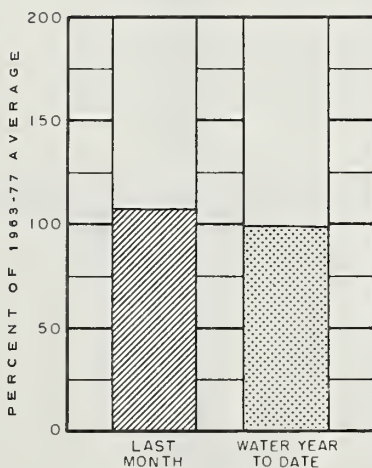
Deschutes at Moody



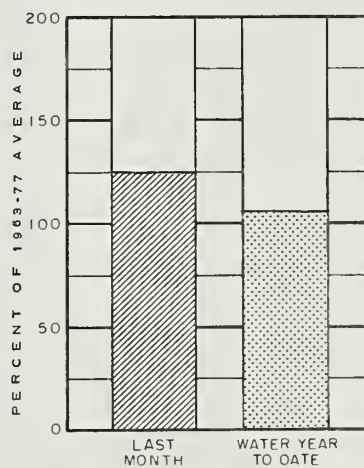
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow

Data furnished by U.S. Geological Survey; The Pacific Power and Light Co.; and North and South Boards of Control Owyhee Project.

# STATUS OF RESERVOIR STORAGE, OCTOBER 1, 1978

RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE ABOUT OCT. 1		
		1978	1977	15-Year Average 1958-72

## UPPER COLUMBIA DRAINAGE

Owyhee	715.0	442.3	173.3	320.6
Beulah Reservoir	60.0	2.5	0.0	8.3
Bully Creek	30.0	9.2	0.0	7.2
Warm Springs	191.0	62.5	0.0	50.7
Phillips Lake	73.5	41.4	9.7	39.9
Unity	25.2	4.4	1.3	2.2
Thief Valley	17.4	7.9	--	--
Wallowa Lake	37.5	30.5	6.2	14.0
Wolf Creek	10.4	5.9	1.3	--

## LOWER COLUMBIA DRAINAGE

Cold Springs	50.0	2.9	2.8	3.1
McKay	73.8	18.1	1.6	7.8
Ochoco	47.5	30.0	2.0	15.2
Prineville	153.0	106.6	38.1	100.3
Crane Prairie	55.3	28.2	16.7	19.9
Crescent Lake	86.9	34.9	34.4	33.6
Wickiup	200.0	55.4	49.8	42.3
Clear Lake (Wasco)	11.9	No Report	0.1	1.6
Blue River	85.6	18.2	8.6	--
Cottage Grove	30.0	13.3	12.7	5.5
Cougar	155.2	98.4	69.7	86.2
Detroit	299.9	178.6	155.7	187.4
Dorena	70.5	30.5	29.4	11.9
Fall Creek	115.0	59.0	61.8	15.0
Fern Ridge	94.2	77.8	23.8	62.5
Foster	30.0	25.4	25.2	21.7
Green Peter	270.0	155.2	155.3	91.0
Hills Creek	200.0	92.1	32.8	110.7
Lookout Point	337.2	136.5	201.9	200.2
Timothy Lake	61.7	30.4	52.5	59.7
Henry Hagg Lake	53.0	32.6	20.9	--

## WEST COAST DRAINAGE

Fourmile Lake	16.1	4.6	1.4	6.0
Fish Lake	8.0	5.2	2.0	3.0
Howard Prairie	60.0	38.1	21.7	37.0
Hyatt Prairie	16.1	8.7	5.5	8.9
Emigrant Lake	39.0	16.8	5.7	8.8
Lost Creek	315.0	143.9	--	--
Upper Klamath	584.0	294.1	224.4	315.9
Gerber	94.0	30.3	4.7	29.9
Clear Lake	440.2	149.1	128.5	165.5
Cottonwood	8.7	2.7	0.0	0.6
Drews	63.0	27.0	0.0	24.4
Thompson Valley	19.5	No Report	0.3	--

# SOIL MOISTURE

DRAINAGE BASIN and/or STATION		Profile (Inches)		Date of Survey	Soil Moisture (Inches)		
Name	Elevation	Depth	Capacity		This Year	Last Year	Average †
Bear Creek (Nev.)	7800	72	16.8	No Report			0.4
Big Bend (Nev.)	6700	48	16.7	No Report			13.2
Blue Mountain Spring	5900	42	16.9	9/27	5.2	6.1	5.8
Mud Flat (Ida.)	5500	48	12.8	No Report			9.3
Rodeo Flat (Nev.)	6800	42	11.0	No Report			7.4
Taylor Canyon (Nev.)	6200	48	15.1	No Report			10.2
Blue Mountain Summit	5100	36	16.8	9/27	9.3	--	7.8
Dooley Mountain	5430	36	9.2	9/27	3.1	2.3	2.9
Emigrant Springs	3925	48	22.3	9/28	12.3	18.9	15.3
Ladd Summit	3730	48	18.9	9/27	8.9	8.4	8.9
Moss Springs	5850	36	25.8	9/28	14.1	14.1	12.2
Tollgate	5070	48	23.6	9/29	15.2	--	13.9
Battle Mountain Summit	4340	48	13.8	9/28	10.5	--	--
Emigrant Springs	3925	48	22.3	9/28	12.3	18.9	15.3
Tollgate	5070	48	23.6	9/29	15.2	--	13.9
Battle Mountain Summit	4340	48	13.8	9/28	10.5	--	--
Blue Mountain Spring	5900	42	16.9	9/27	6.2	6.1	5.8
Blue Mountain Summit	5100	36	16.8	9/27	9.3	--	7.8
Derr	5670	24	9.0	9/26	5.4	5.5	4.1
Marks Creek	4540	36	14.1	10/10	10.2	8.3	9.0
Snow Mountain	6300	48	16.7	9/27	12.1	10.5	10.1
Starr Ridge	5150	36	10.6	9/27	7.6	7.5	7.3
Derr	5670	24	9.0	9/26	5.4	5.5	4.1
Marks Creek	4540	36	14.1	10/10	10.2	8.3	9.0
Snow Mountain	6300	48	16.7	9/27	12.1	10.5	10.1
Quartz Mountain	5230	48	15.3	9/26	6.0	5.7	5.5
Camas Creek	5720	42	14.5	9/28	11.3	9.8	8.8
Quartz Mountain	5230	48	15.3	9/26	6.0	5.7	5.5
Blue Mountain Spring	5900	42	16.9	9/27	6.2	6.1	5.8
Silvies	6900	48	16.4	9/25	12.5	--	--
Snow Mountain	6300	48	16.7	9/27	12.1	10.5	10.1
Starr Ridge	5150	36	10.6	9/27	7.6	7.5	7.3
Willow-Bald	5000	24	6.6	9/27	4.5	3.8	3.5





# The Following Organizations Cooperate in the Oregon Snow Survey Work

## STATE

- Idaho Cooperative Snow Surveys
- Nevada Cooperative Snow Surveys
- Oregon State University
- Oregon Department Of Water Resources
- Soil and Water Conservation Districts of Oregon

## COUNTY

- Douglas County Water Resources Survey

## FEDERAL

- Department of Agriculture
  - Cooperative Extension Service
  - Forest Service
  - Soil Conservation Service
- Department of Commerce
  - NOAA, National Weather Service
- Department of the Interior
  - Bonneville Power Administration
  - Bureau of Land Management
  - Bureau of Reclamation
  - Fish and Wildlife Service
  - Geological Survey
- Department of National Defense
  - Corps of Army Engineers

## PUBLIC UTILITIES

- Pacific Power and Light Company
- Portland General Electric Company
- California-Pacific Utilities Company

## MUNICIPALITIES

- City of Baker
- City of La Grande
- City of The Dalles
- City of Walla Walla

## IRRIGATION DISTRICTS

- Arnold Irrigation District
- Associated Ditch Companies
- Burnt River Irrigation District
- Central Oregon Irrigation District
- East Fork Irrigation District
- Grants Pass Irrigation District
- Hood River Irrigation District
- Jordan Valley Irrigation District
- Juniper Flat Irrigation District
- Lakeview Water Users, Incorporated
- Medford Irrigation District
- Middle Fork Irrigation District
- North Board of Control - Owyhee Project
- North Unit Irrigation District
- Ochoco Irrigation District
- Rogue River Valley Irrigation District
- South Board of Control - Owyhee Project
- Squaw Creek Irrigation District
- Talent Irrigation District
- Tumalo Project
- Vale - Oregon Irrigation District
- Warm Springs Irrigation District

## PRIVATE ORGANIZATIONS

- The Crag Rats, Hood River, Oregon

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